

SUMMARY OF THE RECOMMENDATIONS OF THE CBPR EXPERT ADVISORY COMMITTEE REVIEW OF "DRAFT PROPOSED SAMPLING PROGRAM TO DETERMINE EXTENT OF WORLD TRADE CENTER IMPACTS OT THE INDOOR ENVIRONMENT"

- David O. Carpenter, M.D.
University at Albany
- Scott M. Bartell, Ph.D.,
Emory University
- Paul W. Bartlett, M.A.,
CUNY (on leave)
- John Dement, Ph.D.
Duke University
- Liam O. Horgan, CIH
Art, Inc.
- Gary T. Hunt, M.S.
TRC Companies, Inc.
- Richard A. Lemen, Ph.D.
USPHS (retired)

SAMPLING PROGRAM DESIGN

- ▶ There should be one, well-done sampling program, not one in two phases, and the program should include all areas affected by the plume and the fires and should extend beyond the impacted area to determine background levels using identical methods of sampling and analysis. There needs to be a sense of urgency in accomplishing these goals, which is lacking in the proposal.
- ▶ Sites to be sampled should be selected in a randomly-designed fashion. Dependence of voluntary participation will result in a significant bias in favor of buildings that have been better cleaned.
- ▶ Sampling must consider cleaning history, altitude, type of ventilation system and the orientation of windows and air intake in relation to Ground Zero.
- ▶ It is essential that there be a state-of-the-art QA/QC program in place for all sampling and analysis. None is proposed in the current plan.

SIGNATURE CHEMICALS

- It is naïve to expect there to be one chemical signature. At minimum there will be two, one from the collapse and one from the fires. However, there will probably be more than two, depending upon particulate size, altitude of the indoor space and distance from Ground Zero.
- While it would make things easier if there is a signature, clean-up of indoor spaces contaminated as a result of 9/11 must not be delayed while search for a signature continues.
- If dangerous substances are found in indoor spaces they must be cleaned, whether or not a signature is found and whether or not the source is the WTC. While this poses logistic and legal questions it is essential that city, state and federal governments work together to design an approach to the problem.

CONTAMINANTS TO BE SAMPLED

- The five substances proposed to be sampled (asbestos, MMVF, silica, PAHs and lead) are appropriate, but should be augmented by adding dioxin. Dioxin is one of the most toxic products of combustion of plastics and is persistent. While cost is an issue, use of the CALUX assay should be considered. Particulate mercury (coming from switches and fluorescent lights) should also be measured in indoor spaces.
- Insufficient attention is proposed for fine particles and fibers, and the proposed methods are not adequate for sampling and analysis of fine particles and fibers. The size of particulates in indoor spaces will be different from those found outdoors. Fine particles penetrate the lung deeper than do larger fibers, and are less likely to be removed from indoor spaces through routine cleaning. Fine particles are more easily recirculated in indoor environments, increasing the likelihood of inhalation. While at least in the case of asbestos, large fibers are more toxic than fine fibers on a per fiber basis, the fine fibers are not without toxicity. Sampling procedures must be used that will collect fine particulates and fibers.

METHODOLOGIES PROPOSED FOR COLLECTION AND ANALYSIS

- The sampling protocol should be clearly spelled out so as to assure that all indoor sites are sampled in a comparable fashion.
- The HEPA method will result in collection of materials that may obscure short chrysotile fibers. For cleanup these samples should be ashed and analyzed by TEM.
- The MicroVac proposed will not collect small particulates, and no method is proposed that will do so.
- The dust in inaccessible areas is going to be the best indicator of WTC dust. These areas should be carefully sampled, the dust collected and analyzed and the results considered in determination of whether or not to clean the indoor spaces.
- High priority should be placed on sampling low velocity areas and bends in high velocity areas in duct work, since these are places where particles settle. Details of the sampling protocol must be better developed so as to assure comparable procedures in different buildings.

CRITERIA FOR CLEAN-UP

- **Setting a 3-times background criteria for clean-up is inappropriate for contaminants of greatly varying toxicity. There is no reason that one value should fit all.**
- **No consideration has been given to the fact that exposure is to chemical mixtures, and that individual contaminants may interact to cause disease.**
- **The decision-making criteria for clean-up appear to be dependent upon identification of a WTC signature, which may or may not be found. Criteria must be developed and clean-up must be implemented whether or not a signature is found.**
- **It is not appropriate to use a mean and UCL of a sample set for decisions on whether or not to clean a building, since cleaned and well-used areas will not be indicative of the overall level of contamination.**

SUMMARY

It has already been three and a half years! Clean-up in indoor spaces, if justified, should occur following an efficient, fast and statistically-valid survey of levels of contamination in indoor environments using state-of-the-art methods and standard QA/QC procedures. The current sampling proposal is deficient in a number of regards, and needs to be revised. This should be done quickly, and if indoor spaces contain toxic substances from the WTC collapse they should be cleaned as soon as possible.